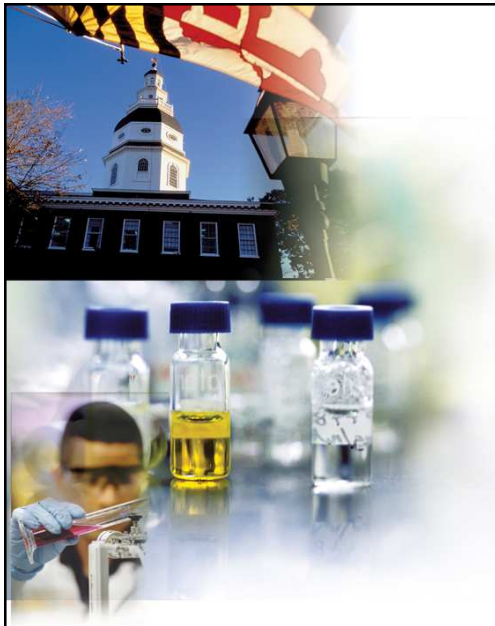
Governor's Workforce Investment Board

THE BIOSCIENCE INDUSTRY INITIATIVE

Maryland Bioscience Workforce Conference

University of Maryland, Baltimore
Life Sciences Conference Center
UMB BioPark

Baltimore, MD
May 23, 2008



THE MARYLAND LIFE SCIENCES ADVISORY BOARD (LSAB)

OVERVIEW

Legislation creating the Maryland Life Sciences Advisory Board was signed into law May 8, 2007.

The Governor announced the LSAB Board Members on September 14, 2007.

The LSAB was created in the Maryland Department of Business and Economic Development (DBED), Mr. David Edgerley, Secretary.

The definition of "life sciences" includes the fields of biotechnology, pharmaceuticals, biomedical technologies, life systems technologies, food sciences, environmental sciences, and biomedical devices.

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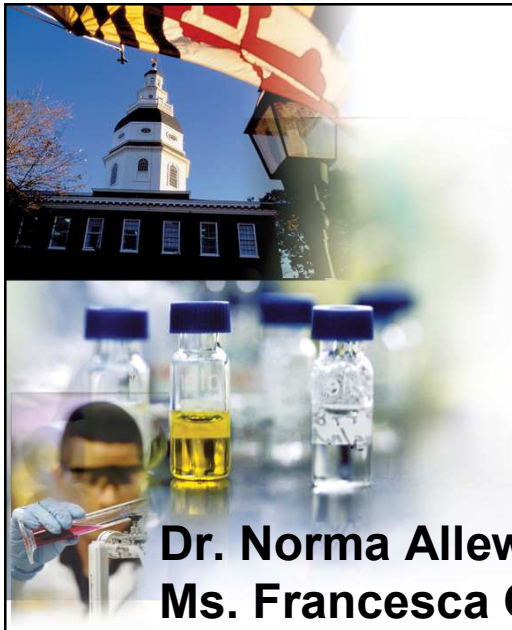

THE MARYLAND LIFE SCIENCES ADVISORY BOARD (LSAB)

Mr. Thomas Watkins, Chair *CEO, Human Genome Sciences, Inc.*

Mr. David Edgerley *Secretary, DBED*
Ms. Renée Winsky *Executive Director, TEDCO*

Dr. Norma Allewell *Dean, Chemical and Life Sciences, University of Maryland, College Park*
Ms. Francesca Cook *Vice President of Policy and Government Affairs, Pharmathene, Inc.*
Dr. Stephen Desiderio *Director, Institute for Cell Engineering, Johns Hopkins School of Medicine*
Mr. Lawrence Diamond *Mid-Atlantic Senior Vice President, Alexandria Real Estate Equities*
Mr. David Iannucci *Director, Department of Economic Development, Baltimore County*
Mr. Philippe Jacon *President, BD Diagnostic Systems*
Col. George Korch *Commander, U.S. Army Medical Research Institute of Infectious Diseases*
Dr. Nina Lamba *President, CCL Biomedical, Inc.*
Dr. Hercules Pinkney *Vice President & Provost, Montgomery College-Germantown*
Dr. David Ramsay *President, University of Maryland, Baltimore*
Dr. Norka Ruiz Bravo *Deputy Director, Extramural Research, National Institutes of Health*
Dr. Janet Woodcock *Deputy Commissioner & Chief Medical Officer, FDA*

Outside Expertise:
Mr. Charles Fleischman, *Co-Founder & past President, Digene (Working Group Chair)*
Mr. Ken Carter, *President & CEO, Avalon Pharmaceuticals (Working Group Chair)*

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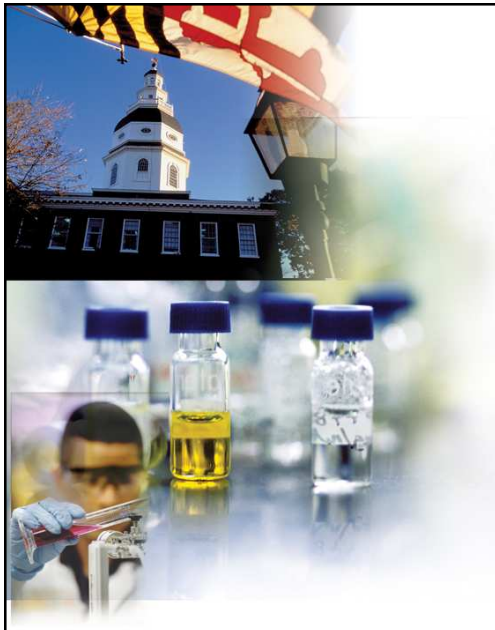

DUTIES OF THE BOARD

The first and primary duty of the LSAB is to develop a *comprehensive state strategic plan for life sciences*

The plan and future activities of the Board should:

- Promote life sciences research, development, commercialization, and manufacturing in the state
- Promote collaboration and coordination among life sciences organizations, and between research institutions of higher education in the state
- Develop a strategy to coordinate state and federal resources to attract private sector investment and job creation in the life sciences
- Develop a strategy to support federal life sciences facilities in the state, including support for education, transportation, housing, and capital investment
- Make recommendations to address critical needs in the life sciences, including access to venture capital and capital construction funding.

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LSAB TIMELINE MILESTONES

√	**May 8, 2007**	**Legislation creating the Maryland Life Sciences Advisory Board signed into law**	
√	**September 14, 2007**	**Governor's Announcement of LSAB Board Members**	
√	**October 17, 2007**	**Inaugural meeting of the LSAB**	Formation of the Working Groups and identification of major areas of focus for the Strategic Plan
√	**Mid-October through November 2007**	First round meetings of the Working Groups	Committee Chairs define members, convene, and set agendas
√	**December 11, 2007**	**Second meeting of the LSAB**	Reports from Working Groups on initial meetings and progress; draft of the 2007 LSAB Annual Report
√	**December 15, 2007**	Submission of the 2007 Annual Report of the LSAB	This report will give a brief summary of the actions of the Board to date
√	**January 2008 through March 2008**	Second round meetings of the Working Groups	Working Committees reach initial conclusions regarding topics for recommendations
√	**March 14, 2008**	**Third meeting of the LSAB**	Reports from Groups on recommendation areas to consider for the Strategic Plan
√	**Mid-March through early May 2008**	Third round meetings of the Working Groups	Working Groups formalize recommendation areas, including supporting rationale and next steps

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LSAB PROPOSED TIMELINE

√	**March 14, 2008**	**Third meeting of the LSAB**	Reports from Working Groups on key recommendations to include in the Strategic Plan and next steps
√	**Mid-March through early May 2008**	Continued meetings of the Working Groups	Working Groups finalize key recommendations, including supporting rationale and next steps
√	**April 24, 2008**	Public Forum of the LSAB – Shady Grove	Solicitation of public input into the LSAB process
√	**May 2, 2008**	Public Forum of the LSAB – Baltimore	Solicitation of public input into the LSAB process
√	**May 22, 2008**	**Fourth meeting of the LSAB**	Presentations of Working Groups on proposed recommendations
	Late - May to mid-June 2008	LSAB and Working Groups	Continued refinement of Working Group recommendations; identification of key fiscal and legislative impact elements; RFI/RFP for retention of consultant to assist in preparing final plan

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LSAB PROPOSED TIMELINE

June 26, 2008	**Fifth meeting of the LSAB**	Presentation of final Working group recommendations; discussion of additional overall LSAB recommendations; discussion of detailed fiscal and legislative impact elements; introduction of consultant organization; discussion of Working group roles in final drafting
July 2008	Revisions/preparation of presentation draft of Strategic Plan for presentation to Governor	Framework development by consultant. Integration of Working Group outputs. Preparation of the full draft of the Strategic Plan.
July 30, 2008	**Sixth meeting of the LSAB**	Review of Presentation Draft of Strategic Plan and discussion of next steps, including steps necessary to achieve implementation
August 4, 2008	Submission of presentation draft to Governor's office for review and comment	
Mid-August to December	Schedule TBD	
December 15, 2008	Submission of the 2008 Annual LSAB Report	Proposed submission of final Strategic Plan

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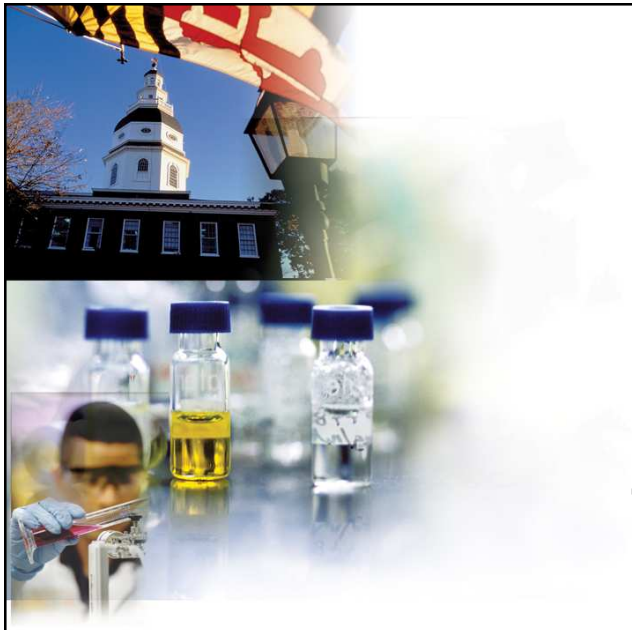

MARYLAND STRATEGIC PLANNING

Maryland's 1991 Biotechnology Strategic Plan

Maryland's 1991 Biomanufacturing Strategic Plan

TEDCO 2002 Biomanufacturing Center Evaluation

Maryland's 1996 Biotechnology Strategic Plan

Maryland's 2003 Draft Bioscience Strategic Plan

Maryland's 2004 Advanced Technology Report (Pappas Commission)

UMBI 2015 Strategic Plan

UMD College of Chemical & Life Sciences 2004-2009 Strategic Plan

Battelle has credited Maryland as the first state to adopt a strategic plan for its biotechnology industry and related infrastructure.

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BENCHMARKS

California

Massachusetts

North Carolina

Pennsylvania

New Jersey

As Maryland's programs have served as national models, so will the Board look at others to assess new alternatives.

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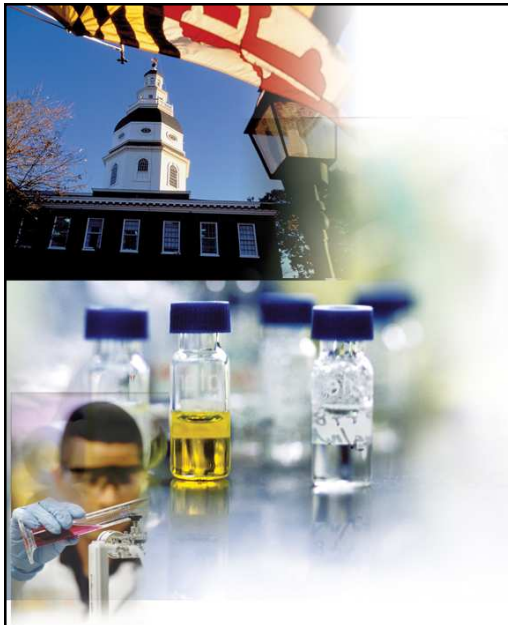

MISSION STATEMENT

Over the past 15 years, Maryland has achieved a critical mass of bioscience industry, one of the largest in the U.S., and has developed programs that have become national and international models.

In today's competitive landscape, ***the goal of the LSAB is to position Maryland's bioscience community*** (industry, academia, research institutes and other NGOs) ***for new growth and opportunities supported by a vibrant workforce***.

These efforts will ensure the continued transformation of Maryland's economy to one based on knowledge, innovation, solution, and inclusiveness.

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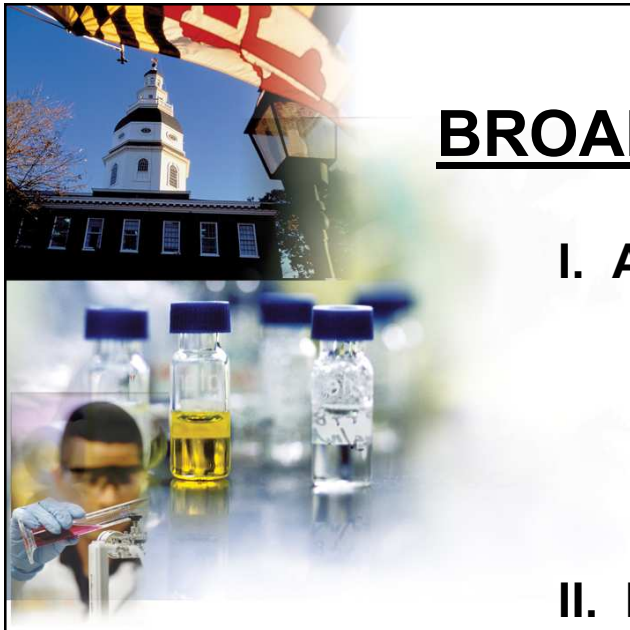

BROAD THEMES FOR THE STRATEGIC PLAN

I. Address New Growth

- Programs with emphasis on stimulating **entrepreneurs** and new **company formation**
- Programs related to **capturing value** from **existing assets**

II. Ensure Sustained Growth

- Programs to address **needs of mid-stage maturing companies** in order to ensure steady success
- Programs that fully maximize available and planned infrastructure

III. New Vision and Long-term Needs

- Programs related to **capturing value from future trends** in bioscience
- **New opportunities** in agricultural, industrial and environmental biotechnology
- Advancing leadership in **medical biosciences**
- New **capital** infrastructure
- **Bold** vs. **follow-along** initiatives

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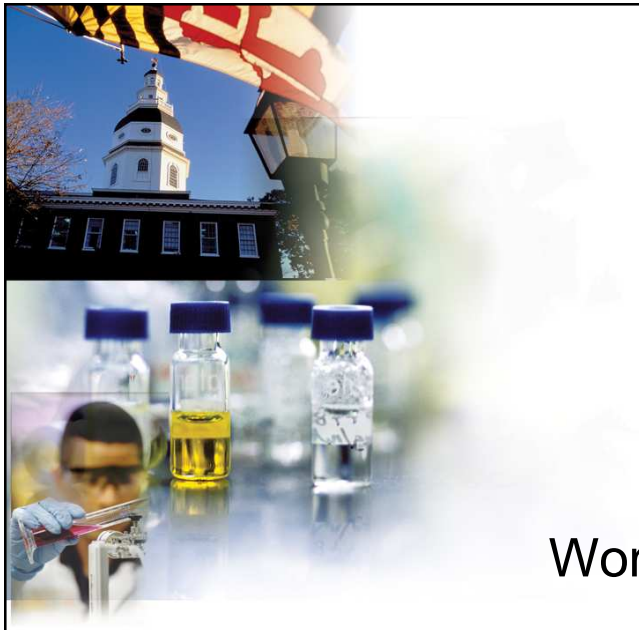

AREAS OF FOCUS

Capital Formation

Business Environment

Workforce Development & Education Programs

Early Stage and Pipeline Programs

Academic Institutions, NGOs, and
Translational Research

Leveraging Maryland's Unique Federal Resources

Marketing and Promotion of Maryland Globally

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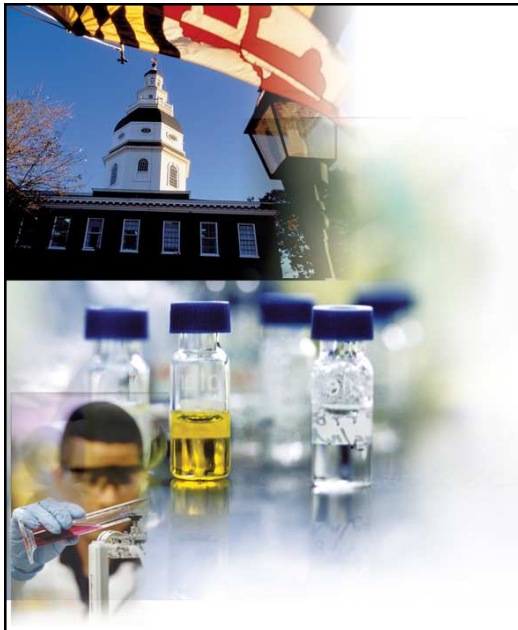

CAPITAL FORMATION

Strategic Concepts

Re-evaluate expand public investment programs, particularly for seed and early stage companies, and determine where “gaps” in funding continuity exist.

Encourage program criteria that recruit and leverage investment by others (e.g. mandatory participation and matching).

Encourage economic incentives to investors to stimulate investment by others such as the BioInvestor Tax Credit or transfer/sales of Net Operating Loss (NOL) credits and others.

Encourage sophisticated angel investor networks and programs such as Capital Access Network and others under development.

Evaluate and support a role for modest (1-2%) participation by the MD Pension Fund in investment in MD (preferential) bioscience companies and create a venture investment partnership for such.

Evaluate a role for specialized loan or temporary bridge funding programs that address unique milestone gaps for bioscience companies (e.g. a clinical trials loan, beta-product development, etc.)

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BUSINESS ENVIRONMENT

Strategic Concepts

Benchmark Maryland and align corporate tax policies to regain a competitive advantage for corporate location and expansion among its east coast competitor bioscience clusters.

Eliminate sunsets on critical tax credit programs (e.g. R&D tax credit) to reaffirm the State's commitment to advancing technology- and knowledge- based economic transition.

Support the adoption of tax credit policies that provide a strong stimulus for leveraged capital formation.

Consider R&D Tax Credit statute modifications, if supported by analysis, that encourage bioscience company participation, enable meaningful distribution of credits to both small/early stage as well as mature stage companies, and provide adequate funding relative to demand.

Maintain MD's generally favorable regulatory policies in line with federal standards and ensure efficient access to information, expedient review of applications and regulatory issues.

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WORKFORCE DEVELOPMENT

Strategic Concepts

Create/maintain program infrastructure for coordinating/connecting MD bioscience training opportunities (a "portal"?).

Support Community College role in providing critical workforce solutions and private sector partnering potential.

Support and continue to develop P20 and STEM initiatives as well as model programs like "Project Lead the Way", science lab bus, etc.

Evaluate funding for Grade 9-12 training, internship programs, math and science teachers.

Enhance recruitment by creating a unified marketing (outreach) plan for the state directed at all skill sets that are required in a bioscience organization.

Create incentives for development/expansion of mixed-use "Live Near Your Work" programs and support transportation projects that link up Life Science hubs.

Address immigration issues such as visas for foreign scientists.

Utilize/develop Maryland's life sciences military talent that provide the state with a unique workforce pool that has not been effectively tapped.

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EARLY STAGE & PIPELINE PROGRAMS

Strategic Concepts

Create a “one stop” entrepreneur resource center or portal for programs, resources, and guidance relating to starting and growing a bioscience company.

Support and promote Maryland’s entrepreneur development programs such as ACTiVATE and other business school initiatives at Macklin, Dingman, and Hopkins. Include federal, academic and private sector.

Conduct a “gap analysis” on existing ES&PP programs for different company business models including impact, relevancy, flexibility, and funding. Consider gap filling additions for continuity and success.

Streamline interactions and entrepreneur efforts between programs by seeking common denominators in application procedures and reporting metrics where possible.

Evaluate and adopt “best practices and services” in current in bioscience capable incubators in the State.

Encourage continued State role and support in the creation of bioscience-ready incubators and other programmatic infrastructure.

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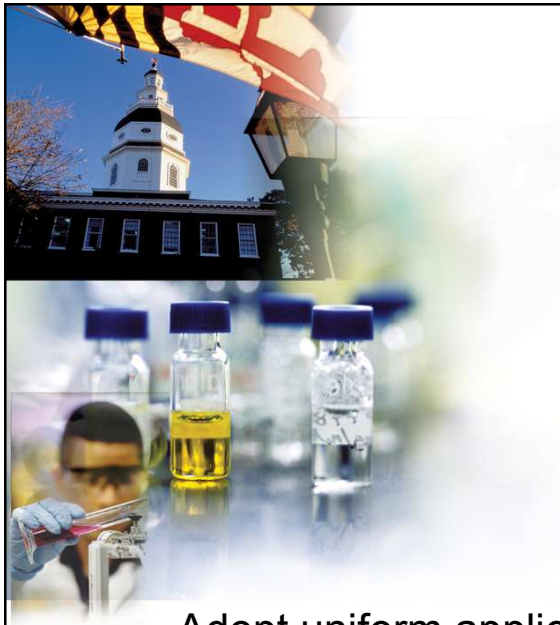

ACADEMIC INSTITUTIONS, NGOS & TRANSLATIONAL RESEARCH

Strategic Concepts

Adopt consensus “outcomes of success” in technology transfer.

Increase internal search and evaluation abilities in university labs to identify promising, “commercializable” research programs.

Adopt uniform application and increased participation of outside review boards to assist in technology assessment within the technology transfer offices.

Adopt uniform IP policies and eliminate administrative bottlenecks among organizations to accelerate technology transfer to the private sector.

Establish a more supportive academic environment for faculty involvement (e.g. company creation) in commercialization activities.

Investigate the feasibility of creating a *leveraging* “translational research fund” to push commercialization outcomes. (The purpose of such needs to be clearly defined and confusion eliminated from the existing NIH/CTSA “translational research” initiative.)

Consider the creation of a “Maryland Technology Translation Center(s)” in public-private partnership - possibly with a “Phase I” feasibility analysis.

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LEVERAGING MARYLAND'S UNIQUE FEDERAL RESOURCES

Strategic Concepts

Establish a permanent network to identify federal and state resources and programs. Possibilities include a standing Federal-State working group, a "one-stop" virtual information center (a "play book") for research, business development, and program management individuals.

Increase program activities that promote federal-academic collaboration and strategic partnerships.

Consolidate information on all relevant federal solicitations and procurement opportunities for MD's bioscience industry and enhance industry sector training efforts (e.g. workshops) on successful outcomes in solicitations and procurement requests.

Leverage proximity to understand strategic needs and create proximal infrastructure to capitalize on such opportunities (e.g. research parks, TR fund, or TRC concept.

Establish a coordinated "Federal Projects Response Team" or equivalent and empower to mobilize the Governor's Office, General Assembly, U.S. Senate and Congressional delegations, and relevant in-state response groups for awareness and supportive representation on federal life sciences initiatives.

Proactively investigate and promote "national model" opportunities for Maryland.

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MARKETING AND PROMOTION OF MARYLAND GLOBALLY

Strategic Concepts

Develop a long-term strategic sales and marketing plan for the MD's life sciences industry.

Evaluate the relative balance between in-state expansion and foreign direct investment efforts by the State and others. Adopt supporting programs and infrastructure.

Remain competitive: Increase the ability to obtain meaningful business intelligence, evolving trends in the industry worldwide, and best methods to execute globally.

Maintain or increase MD's international branding in domestic and international life sciences clusters, events, and promotional materials. Identify the best venues to showcase Maryland to the international community.

Leverage existing relationships in the public and private bioscience sectors to identify and cultivate potential prospects. Develop formal partnerships to "sell" Maryland.

Create a "welcome network" of Maryland individuals, institutions and companies that engage prospective domestic and international life science prospects when they visit Maryland.

Ensure adequate funding and personnel to implement and sustain these programs.

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LSAB PROGRESS

For continued updates on the progress of the LSAB, visit the website at:
www.choosemaryland.org

and follow the Life Sciences Advisory Board link.

Thank you for taking the time and effort to be here today to assist us in creating new vision for the State's bioscience community.

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